

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



**FILED**

12-17-07  
04:59 PM

Order Instituting Rulemaking to Implement the  
Commission's Procurement Incentive Framework and  
to Examine the Integration of Greenhouse Gas  
Emissions Standards into Procurement Policies.

The California Energy Commission

R.06-04-009  
(Filed April 13, 2006)

Docket 07-OIIP-01

**COMMENTS OF CLEAN ENERGY  
FUELS CORPORATION**

Donald C. Liddell  
DOUGLASS & LIDDELL  
2928 2<sup>nd</sup> Avenue  
San Diego, California 92103  
Telephone: (916) 993-9096  
Facsimile: (916) 296-4662  
Email: [liddell@energyattorney.com](mailto:liddell@energyattorney.com)

Counsel for  
**CLEAN ENERGY FUELS CORPORATION**

December 17, 2007

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Implement the  
Commission's Procurement Incentive Framework and  
to Examine the Integration of Greenhouse Gas  
Emissions Standards into Procurement Policies.

R.06-04-009  
(Filed April 13, 2006)

The California Energy Commission

Docket 07-OIIP-01

**COMMENTS OF CLEAN ENERGY  
FUELS CORPORATION**

Pursuant to Rules 1.9 and 1.10 of the California Public Utilities Commission's ("Commission") Rules of Practice and Procedure, Clean Energy Fuels Corporation ("Clean Energy")<sup>1</sup> hereby files these comments in response to the Administrative Law Judges' Ruling Requesting Comments on Type and Point of Regulation Issues for the Natural Gas Sector issued on November 28, 2007 (the "Ruling"), and the Administrative Law Judge's Ruling Extending Deadline for Comments and Incorporating Responses to Staff Data Requests on Natural Gas Issues issued on December 10, 2007.

**I. INTRODUCTION**

Clean Energy's Comments address only one of the many questions that the Ruling requested comments on; that is, Question Number 5 (b.) at page 4 of the Ruling which focuses on "Natural gas combustion by natural gas vehicles." Clean Energy supports the

---

<sup>1</sup> Clean Energy, a customer of PG&E, SoCalGas and SDG&E, is the largest provider of vehicular natural gas and liquefied natural gas ("LNG") in North America operating more than 170 natural gas refueling stations in eleven states and two provinces in Canada. Clean Energy has substantial refueling operations in northern and southern California and has been a leading force in improving environmental quality in California by helping reduce emissions, including greenhouse gas ("GHG") emissions associated with conventional petroleum-fueled motor vehicle use in the State. Clean Energy has a broad customer base in the refuse, transit, shuttle, taxi, police, intrastate and interstate trucking, airport and municipal fleet markets with tens of thousands of vehicles fueling at strategic locations in the United States and Canada. Its operations have also contributed to reducing California's excessive dependence on petroleum-based fuels in the State's transportation sector. Clean Energy is a publicly traded company with its shares traded on the NASDAQ under the ticker symbol "CLNE."

recommendation made by the Division of Ratepayer Advocates (the "DRA") in its July 12, 2007 "Preliminary Staff Recommendations for Treatment of Natural Gas Sector Greenhouse Gas Emissions" (Attachment "A" to Administrative Law Judges' Ruling Regarding Comments on Staff Natural Gas Proposal and Notice of Prehearing Conference issued on July 12, 2007). "Staff Recommends...that emissions from natural gas vehicles be considered by ARB as part of the transportation sector" (pages 2-3). In its report, the DRA acknowledges the potential for increased sources of natural gas in some market sectors to reduce GHG emissions in other sectors, citing the example of bio-methane capture at livestock feedlots (page 11). As will be shown later in these comments, significant reductions in overall GHG emissions in California can also be achieved as a result of the increased use of natural gas in California's transportation sector. As a result of fuel use displacement, the increased use of natural gas in California's transportation sector will lead to an overall reduction in GHG emissions because compressed natural gas ("CNG") and liquefied natural gas ("LNG") fueled vehicles have a much more favorable GHG emission's profile than gasoline or diesel-fueled vehicles. Increased use of natural gas in transportation results directly in a reduction in petroleum fuel consumption in contrast to what otherwise would be the case.

Recognition of the fact that increased use of natural gas in transportation helps California achieve its overall GHG emissions reduction targets is the policy rationale underlying the DRA's recommendation that natural gas use for transportation should be outside of the scope of the policies that will be implemented as one of the result of the natural gas phase of this proceeding. Rather, as the DRA recommends, GHG emissions associated with natural gas use for transportation should be addressed by the California Air Resources Board (the "CARB") as a part of the overall framework of emissions regulations that will be applicable to the transportation sector in the context of the CARB's Low Carbon Fuel Standard ("LCFS") proceeding.

It is important that California's utilities not be directly or indirectly penalized for the increased use of natural gas that results from their successful efforts to accelerate the market penetration of natural gas vehicles in their service territories and in California as a whole. It is critically important not to be creating perverse incentives in the regulatory framework. Since, as will be shown later in these comments, California's transportation sector, in the aggregate, produces almost half of the State's overall GHG emissions, significant displacement of

petroleum use in transportation by alternate fuel vehicles is necessary if California is to achieve its overall GHG emissions reduction goals. For the same reasons, Clean Energy also advocates that the increased use of electricity as a transportation fuel to displace petroleum fuel use should be excluded from the scope of the decisions that will be issued as a result of this proceeding.

Even though the regulation of emissions arising from increased natural gas and electricity use in transportation to displace petroleum fuel use should be administered by the CARB, it is important that there be a mechanism in place to assign emissions reduction credits under a cap and trade program, if adopted, to those entities which are causing the increased natural gas and electricity use to be achieved for transportation purposes and through whose meters the increased volumes are being metered. The overall purpose of a cap and trade program, of course, is to ensure that the lowest cost emissions reduction opportunities are those which are actually implemented in order to minimize the overall economic costs to the State in achieving any emissions reduction goal.

Clean Energy's view is that natural gas vehicles ("NGVs") will prove to be among the lowest cost tools for achieving through petroleum displacement significant overall GHG emission reductions in California. NGVs are the only alternate transportation fuel vehicles that offer customers and consumers the prospect of fuel cost savings over time which can be significantly greater than the first cost disadvantage of the vehicles. From the standpoint of minimizing the economic costs to California of achieving GHG emissions reductions, it is important that low cost sources which can deliver significant GHG emissions reductions be included in any cap and trade program to provide a supply of credits that will tend to reduce the overall market price of emissions credits. By doing so, the overall cost of achieving GHG emissions reductions will be minimized, a critical policy objective for the State.

In addition to establishing emission regulations associated with the increased use of natural gas and electricity in transportation, the CARB (or some other appropriate agency) will need to assign or otherwise make available emission reduction credits linked to the increased use of natural gas and electricity as a transportation fuel, since the displacement of petroleum use in transportation by less polluting natural gas and electricity immediately results in significant GHG emission reductions and also immediately contributes to achieving the LCFS' 10% carbon content in transportation fuel reduction goal. For increased natural gas and electricity transportation fuel usage which falls below the volume threshold needed to achieve eligibility for

receiving GHG emission reduction credits, other market participants, possibly California's gas and electric utilities, should be permitted to aggregate loads on behalf of those smaller customers so those customers can capture the emissions credit incentives their contribution to GHG emissions reduction would otherwise qualify them for.

## **II. BACKGROUND ON CALIFORNIA'S GHG EMISSIONS AND PETROLEUM FUEL DEPENDENCE REDUCTION POLICY GOALS**

As a result of recent State legislative policy decisions (AB 32 and AB 1007), California has assumed a leadership role for the nation in tackling the serious challenges presented by GHG emissions and excessive dependence on petroleum-based fuels. It has established aggressive targets both for the reduction of GHG emissions and the displacement of petroleum use in California's transportation sector by alternate transportation fuels, which in the case of some fuels such as natural gas and LNG offer significant potential GHG emission reductions in addition to their petroleum fuel displacement benefits.

On June 1, 2005, Governor Schwarzenegger signed Executive Order S-03-05 that established the following highly aggressive targets for GHG emission reductions:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels;
- By 2050, reduce GHG emissions 80% below 1990 levels.

On January 18, 2007, Governor Schwarzenegger signed Executive Order S-01-07 that established the LCFS for California setting a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020.

To make significant progress toward achieving these targets, all sectors of the California economy, public and private, and particularly the State's energy utilities, working cooperatively and in unison will need to take aggressive actions to reduce GHG emissions in the domains where they can each make a material difference.

## **III. THE PROBLEM OF EXCESSIVE PETROLEUM DEPENDENCE**

Despite the almost complete failure of the Federal government to adequately address the oil dependency problem, the significance of this issue has been clearly recognized in California and aggressive goals have already been established to address California's contribution to the

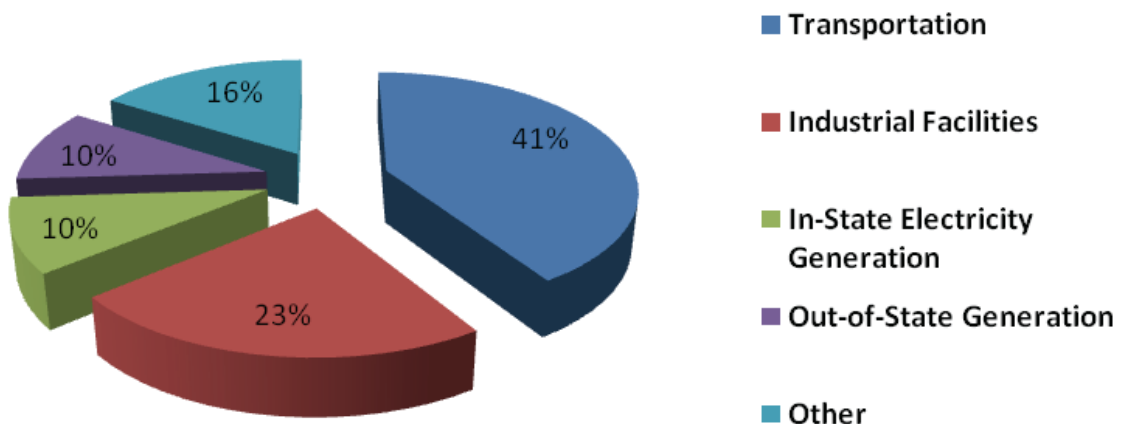
problem. In August, 2003, the California Energy Commission ("CEC") and the CARB recommended in their joint report titled, "Reducing California's Petroleum Dependence" (P600-03-005F, August, 2003), reported to the legislature that California should adopt a goal of 20% non-petroleum fuel use in transportation by 2020 increasing to 30% by 2030 (page 17). Overall, "as directed by statute, and based on the analysis in this report, the two agencies recommend that California adopt a policy to reduce gasoline and diesel fuel demand to 15 % below 2003 demand levels by 2020 and maintain that level for the foreseeable future" (page 12). The specific means identified by the CEC and CARB for achieving the goal of reducing petroleum dependence are the accelerated market penetration of alternate fueled vehicles and increased vehicle fuel efficiency.<sup>2</sup> Since then, the CEC has been tasked with developing a plan to identify how best to achieve these aggressive goals. The resulting Joint Committee Report was recently approved by the CEC and CARB.

As shown in Figure 1, by far the largest share of GHG emissions in California are produced by the now petroleum fuel-dominated transportation sector. As the data in the Figure show, 41% of California's GHG emissions are from the transportation sector with 23% produced by industrial facilities. More than 40% of the GHG emissions from industry, however, are associated with petroleum refining. Refinery emissions primarily result from the production of transportation fuels. When refinery emissions are added in, the transportation sector in total accounts for about 50% of California's GHG emissions (see Figure 1).

---

<sup>2</sup> Reducing California's Petroleum Dependence, page 3.

**Figure 1- Sources of California's Greenhouse Gas Emissions**



**Source: Slide 3 of a presentation by Julie Fitch, the Commission's Director of Strategic Planning, distributed at an Energy Efficiency Workshop in R.06-04-010, held on May 4, 2007.**

#### **IV. ALTERNATIVE TRANSPORTATION FUELS CAN CONTRIBUTE SIGNIFICANTLY TO GHG EMISSION REDUCTION**

It is important to recognize that some alternate transportation fuels, especially CNG and LNG can contribute to significant reductions in transportation sector GHG emissions in California. A recent full fuel-cycle energy consumption and emissions analysis commissioned by the CEC and the CARB as a part of the AB 1007 initiative shows that alternate transportation fuels, most prominently CNG and LNG, offer significant promise in reducing GHG emissions by displacing petroleum-based fuel use in the transportation sector.<sup>3</sup>

As shown in Figure 2, the only transportation fuel which offers a more favorable GHG emissions profile than CNG and LNG is hydrogen, which won't become a commercially viable

---

<sup>3</sup> See Figure 2.

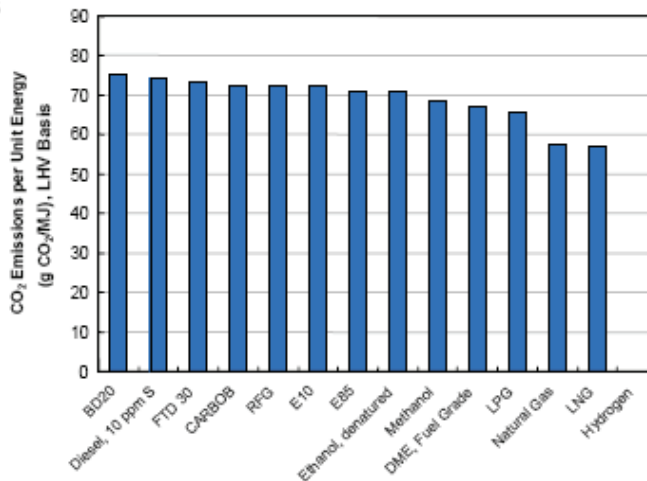
transportation fuel for decades.<sup>4</sup> Furthermore, CNG and LNG offer a more favorable GHG emissions profile than low sulfur (i.e., 10 parts per million or lower sulfur content) diesel and reformulated gasoline, and other alternate transportation fuels such as bio-diesel and E10 (i.e., 10% ethanol blend with gasoline) and "E85" ethanol/gasoline blends.

## Figure 2 – Carbon Content of Transportation

Fuels

**Alternative fuels have lower carbon content in fuel relative to heating value and result in lower CO<sub>2</sub> emissions**

- Need to account for fuel cycle and vehicle energy use in comparing CO<sub>2</sub> emiss



M7100 7700

8

**Source: Page 8 of TIAX, "Full Fuel Cycle Analyses for AB 1007," presented at CEC-ARB Workshop on Developing a State Plan to Increase the Use of Alternative Transportation Fuels on March 2, 2007.**

<sup>4</sup> See Pages 81 and 138 of the U.S. Department of Energy's Energy Information Administration (DOE/EIA) 2007 Annual Energy Outlook, which forecasts no significant hydrogen use in transportation through 2030.



The CEC's "wells to wheels" analysis concluded that natural gas provides up to a 30% reduction in greenhouse gas emissions for light-duty vehicles and as much as a 23% reduction for medium-to-heavy-duty vehicles in contrast to reformulated gasoline and low sulfur diesel fueled vehicles.<sup>5</sup>

**V. THE EXCESSIVE PETROLEUM DEPENDENCE PROBLEM IS JUST BEGINNING TO RECEIVE THE ATTENTION IT MERITS**

The "Reducing Petroleum Dependence" report cited previously concluded that:

"California faces a future of increasing petroleum dependence, supply disruptions, and price volatility." "A vibrant California economy depends on secure, reliable, and affordable sources of transportation fuels. The recent war in Iraq underscores the importance of reducing California's and the nation's growing dependence on unstable foreign oil sources. Although these concerns are long-term, the state must take action now to avoid the adverse consequences of California's growing petroleum dependence." . . . "To avoid the adverse consequences of California's dependence on petroleum, the state must adopt measures to improve transportation energy efficiency and expand the use of non-petroleum fuels. Furthermore, supporting the use of non-petroleum fuels should allow for a smooth transition away from petroleum dependence in the transportation sector. There are steps that government can take in the near-term. The most effective strategies to reduce demand for petroleum, however, require long lead times to fully implement. Therefore, urgent focus on these issues is needed now."<sup>6</sup>

The nation's and California's economies' excessive dependence on petroleum, increasingly supplied from imported sources is one of the biggest crises facing California and the nation as a whole. Despite the increasing awareness of the magnitude and seriousness of this problem, as projections developed by the DOE/EIA show, the problem is expected to persist for the foreseeable future. As with the challenge of achieving GHG reductions, aggressive steps are likely only to mitigate slightly the imported petroleum dependence situation. Clearly, aggressive actions are needed given the magnitude and intractability of these problems.

---

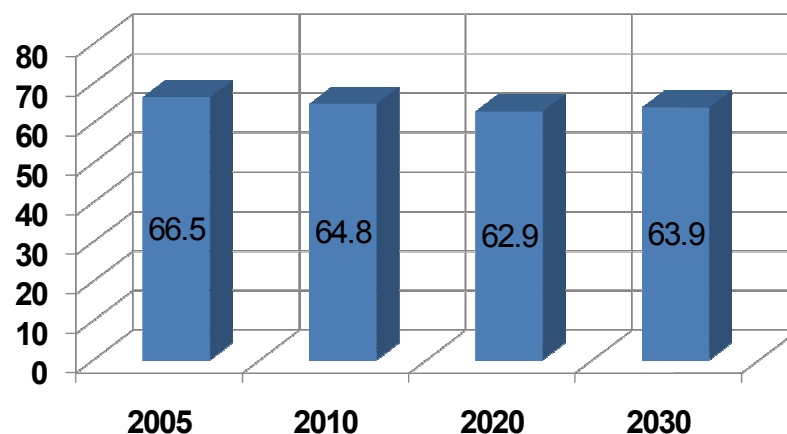
<sup>5</sup> TIAX, "Full Fuel Cycle Assessment Wells to Wheels Energy Inputs, Emissions, and Water Impacts," prepared for the CEC (CEC-600-2007-003), Table 3-11, page 3-19.

<sup>6</sup> Source: "Reducing California's Petroleum Dependence," Joint Agency Report of the CEC and the CARB (P600-03-005F), August 2003, pages 1-3.

**VI. THE HIGH DEPENDENCE ON IMPORTED PETROLEUM SUPPLY IS ONLY ONE FACET OF THE EXCESSIVE PETROLEUM FUEL DEPENDENCE PROBLEM**

Figure 3 shows, based on the DOE/EIA's 2007 AEO, that despite current high oil prices, U.S. dependence on petroleum imports is projected to remain at inordinately high levels through 2030 despite the unfortunately half-hearted and weak initiatives that so far have been implemented at the national level to address the increasingly well understood imported oil dependence problem. The challenge of continuing excessive dependence on imported supplies is primarily the result of the inexorable decline in the share of petroleum needs supplied from domestic crude oil production combined with continuing increases in demand for transportation fuels resulting from ongoing population and economic growth. At present, California's petroleum dependence problem is a mirror image of that facing the nation as a whole, but over time it will become relatively more severe since future California oil production will supply a smaller share of the State's petroleum product consumption than will be the case for the nation as a whole.

**Figure 3. Imports as a % of Total U.S. Crude Oil Supply**



Source: 2007 EIA AEO, High Oil Price Case, page 177.

In contrast to the two-third's dependence on imported petroleum that California and our nation as a whole are experiencing today, it is important to recognize that at the time of the Arab Oil Embargo of 1973, the United States relied on imported crude oil supplies for just 26% of its total crude oil supplies. (U.S. DOE/EIA, "Monthly Energy Review," April 2007, page 46). Despite all of the fervent proclamations about achieving "Energy Independence," our nation and California have become much more, not less, vulnerable in the intervening 34 years and this undesirable situation is expected to remain largely unchanged for the foreseeable future.

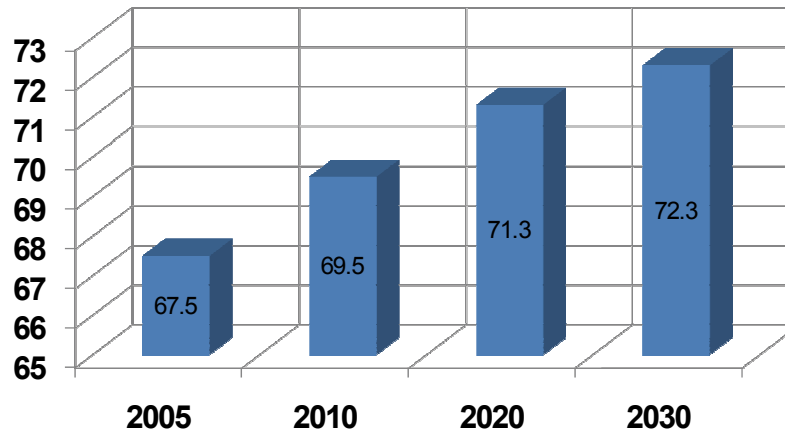
## **VII. THE TRANSPORTATION SECTOR'S PETROLEUM DEPENDENCE IS THE SOURCE OF THE OVERALL PETROLEUM DEPENDENCE PROBLEM**

The transportation sector's reliance on petroleum-based fuels is the primary factor in the petroleum dependence problem. As shown in Figure 4, nationally the transportation sector accounts for by far the largest share of petroleum use in the overall economy and this share is projected to continue to increase through 2030. In California, the transportation sector accounts for an even greater share - about 96%,<sup>7</sup> of total petroleum use. This is true because California does not use residual fuel oil for electric power generation nor heating oil for residential space heating as is the case in some other parts of the country.

---

<sup>7</sup> See, Governor's Low Carbon Fuel Standard White Paper, January 8, 2007, page 2.

Figure 4. Transportation Sector % of Total U.S. Petroleum Consumption

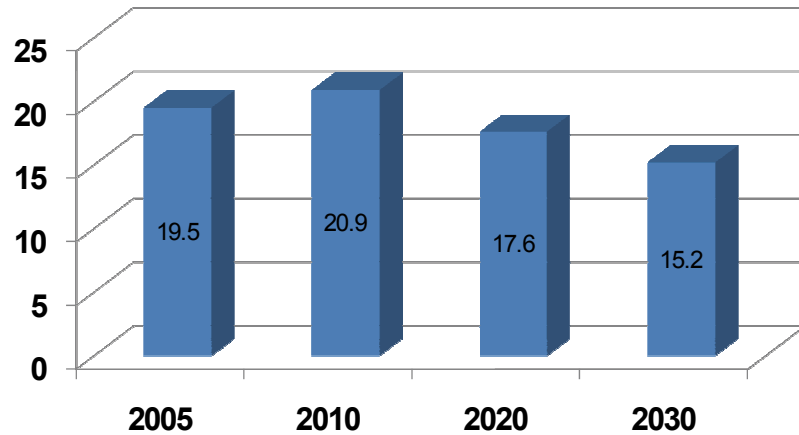


Source: 2007 EIA AEO, High Oil Price Case, pages 177 and 180.

**VIII. EVEN WITH SHARPLY INCREASED DEMAND FOR NATURAL GAS AS A TRANSPORTATION FUEL, OUR DEPENDENCE ON IMPORTS FOR NATURAL GAS IS EXPECTED TO DECLINE OVER TIME**

In contrast to the extremely high level of U.S. and California dependence on imported crude oil supplies, Figure 5 shows the EIA's projections of the share of U.S. natural gas consumption served by imported supplies. As the data indicate, in 2005 imported supplies of natural gas amounted to about 19.5 % of total consumption and almost all of these imports were from secure Canadian sources. The extent of natural gas import dependence is projected to decline over the forecast period to 15.2% as Canadian imports decline due to resource depletion and as LNG imports comprise an increasingly larger share of total U.S. natural gas imports. Sharply increased use of natural gas as a transportation fuel will not alter the fact that U.S. dependence on imported natural gas supplies as a percentage of consumption will decline over the forecast period.

**Figure 5. Imported Supplies as a % of Total U.S. Natural Gas Consumption**

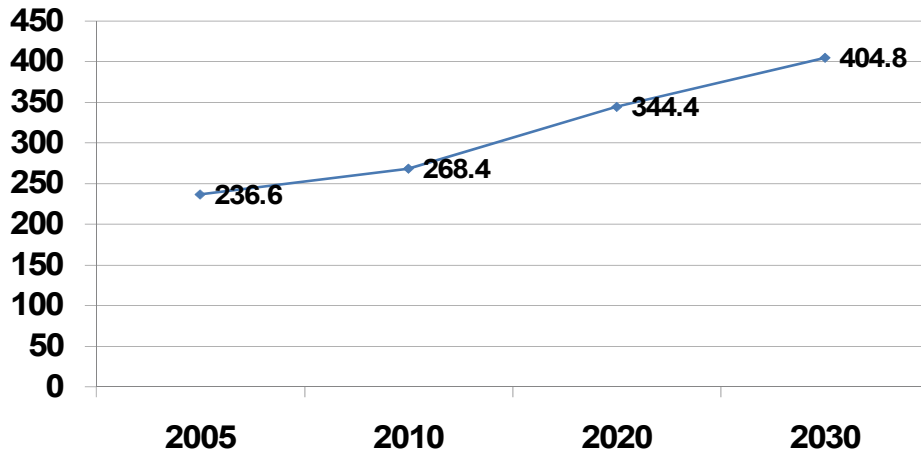


Source: 2007 EIA AEO, High Oil Price Case, page 177.

**IX. OTHER ADVERSE ECONOMIC CONSEQUENCES OF THE PETROLEUM DEPENDENCE PROBLEM**

Extremely high gasoline and diesel prices increase the amount of money consumers and businesses must spend on transportation fuel and reduces the amount of money available for other discretionary consumption expenditures that more directly support domestic economic growth. Another important dimension of the imported petroleum dependence problem is the adverse impact high levels of dependence on costly imported petroleum has on the nation's balance of trade and balance of payments accounts. As shown in Figure 6, the forecast costs of petroleum imports are expected to grow dramatically in future years. The cost of imported petroleum comprises a substantial proportion of the massive annual balance of trade and payments deficits our country has been running in recent years. The U.S. dollars which are paid to suppliers of imported oil flow to Middle Eastern countries some of which are providing financial support for terrorist activities targeted against us. Our heavy dependence on imported oil makes our international adversaries stronger and more dangerous and the United States financially weaker and more vulnerable to supply disruptions.

**Figure 6. Cost of U.S. Crude Oil and Petroleum Product Imports (Billions of 2005\$)**



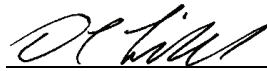
Source: 2007 EIA AEO, High Oil Price Case, page 185.

In turn, the ongoing balance of trade and payments deficits largely caused by imported oil dependence lead to a persistent weak dollar compared against the currency values of the United State's major trading partners, which leads to increased domestic inflationary pressures reflected in the prices of goods and services imported into the U.S. Since world oil prices are denominated in U.S. dollars, the depreciation in the value of the dollar resulting from ongoing balance of trade and payments deficits also can create an incentive for oil producers to try and offset the reduction in the purchasing power of their oil revenues through higher oil prices.

**X. CONCLUSION**

Clean Energy advocates that it is essential that regulators and market participants clearly understand the close linkages between the GHG emissions and excessive petroleum dependence problems and their adverse consequences; they represent two sides of the same coin. The good news in all of this is that through the promotion of the accelerated market penetration of alternate transportation fuels, especially natural gas, public policy at both the State and Federal levels can effectively address and contribute to the solution of both of these problems at the same time.

Respectfully submitted,



---

Donald C. Liddell

DOUGLASS & LIDDELL  
2928 2nd Avenue  
San Diego, California 92103  
Telephone: 619.993.9096  
Facsimile: 619.296.4662  
liddell@energyattorney.com

Counsel for **CLEAN ENERGY FUELS CORPORATION**

December 17, 2007

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served a copy of this Comments of Clean Energy Fuels Corporation on all parties of record in proceeding R.06-04-009 by serving an electronic copy on their email addresses of record and by mailing a properly addressed copy by first-class mail with postage prepaid to each party for whom an email address is not available.

Executed on December 17, 2007, at Woodland Hills, California.

A handwritten signature in cursive script, appearing to read "Michelle Dangott", is written over a horizontal line.

Michelle Dangott



## SERVICES LIST

**R.06-04-009**

cadams@covantaenergy.com  
steven.schleimer@barclayscapital.com  
steven.huhman@morganstanley.com  
rick\_noger@praxair.com  
keith.mccrea@sablax.com  
ajkatz@mwe.com  
ckrupka@mwe.com  
kyle\_boudreaux@fpl.com  
cswoollums@midamerican.com  
Cynthia.A.Fonner@constellation.com  
kevin.boudreaux@calpine.com  
trdill@westernhubs.com  
ej\_wright@oxy.com  
pseby@mckennalong.com  
todil@mckennalong.com  
steve.koerner@el Paso.com  
jenine.schenk@apses.com  
jbw@slwplc.com  
kelly.barr@srpnet.com  
rrtaylor@srpnet.com  
smichel@westernresources.org  
roger.montgomery@swgas.com  
Lorraine.Paskett@ladwp.com  
ron.deaton@ladwp.com  
snewsom@semprautilities.com  
dhuard@manatt.com  
curtis.kebler@gs.com  
dehling@klng.com  
gregory.koiser@constellation.com  
npedersen@hanmor.com  
mmazur@3phasesRenewables.com  
vitaly.lee@aes.com  
tiffany.rau@bp.com  
klatt@energyattorney.com  
rhelgeson@scppa.org  
douglass@energyattorney.com  
pssed@adelphia.net  
bwallerstein@aqmd.gov  
akbar.jazayeri@sce.com  
annette.gilliam@sce.com  
cathy.karlstad@sce.com  
Laura.Genao@sce.com  
rkmoore@gswater.com  
dwood8@cox.net  
atrial@sempra.com  
apak@sempraglobal.com  
dhecht@sempratrading.com  
daking@sempra.com  
svongdeuane@semprasolutions.com  
troberts@sempra.com

liddell@energyattorney.com  
marcie.milner@shell.com  
rwinthrop@pilotpowergroup.com  
tdarton@pilotpowergroup.com  
lschavrien@semprautilities.com  
GloriaB@anzaelectric.org  
llund@commerceenergy.com  
thunt@cecmail.org  
jeanne.sole@sfgov.org  
john.hughes@sce.com  
llorenz@semprautilities.com  
marcel@turn.org  
nsuetake@turn.org  
dil@cpuc.ca.gov  
fjs@cpuc.ca.gov  
achang@nrdc.org  
rsa@a-klaw.com  
ek@a-klaw.com  
kgrenfell@nrdc.org  
mpa@a-klaw.com  
sls@a-klaw.com  
bill.chen@constellation.com  
bk7@pge.com  
epoole@adplaw.com  
agrimaldi@mckennalong.com  
bcragg@goodinmacbride.com  
jsqueri@gmssr.com  
jarmstrong@goodinmacbride.com  
kbowen@winston.com  
lcottle@winston.com  
sbeatty@cwclaw.com  
vprabhakaran@goodinmacbride.com  
jkarp@winston.com  
jeffgray@dw.com  
cjw5@pge.com  
ssmyers@att.net  
lars@resource-solutions.org  
alho@pge.com  
aweller@sel.com  
jchamberlin@strategicenergy.com  
beth@beth411.com  
kerry.hattevik@mirant.com  
kowalewskia@calpine.com  
wbooth@booth-law.com  
hoerner@redefiningprogress.org  
janill.richards@doj.ca.gov  
cchen@ucsusa.org  
gmorris@emf.net  
tomb@crossborderenergy.com

bmcc@mccarthyllaw.com  
sberlin@mccarthyllaw.com  
Mike@alpinenaturalgas.com  
joyw@mid.org  
UHelman@caiso.com  
jjensen@kirkwood.com  
mary.lynch@constellation.com  
lrdevanna-rf@cleanenergysystems.com  
abb@eslawfirm.com  
mclaughlin@braunlegal.com  
glw@eslawfirm.com  
jluckhardt@downeybrand.com  
jdh@eslawfirm.com  
vwelch@environmentaldefense.org  
www@eslawfirm.com  
westgas@aol.com  
schohn@smud.org  
atrowbridge@daycartermurphy.com  
dansvec@hdo.net  
notice@psrec.coop  
deb@a-klaw.com  
cynthia.schultz@pacificorp.com  
kyle.l.davis@pacificorp.com  
ryan.flynn@pacificorp.com  
carter@ieta.org  
jason.dubchak@niskags.com  
bjones@mjb Bradley.com  
kcolburn@symbioticstrategies.com  
rapcowart@aol.com  
Kathryn.Wig@nrgenergy.com  
sasteriadis@apx.com  
george.hopley@barcap.com  
ez@pointcarbon.com  
burtraw@rff.org  
vb@pointcarbon.com  
andrew.bradford@constellation.com  
gbarch@knowledgeinenergy.com  
ralph.dennis@constellation.com  
smindel@knowledgeinenergy.com  
brabe@umich.edu  
bpotts@foley.com  
james.keating@bp.com  
jimross@r-c-s-inc.com  
tcarlson@reliant.com  
ghinners@reliant.com  
zaiontj@bp.com  
julie.martin@bp.com  
fiji.george@el Paso.com  
echiang@elementmarkets.com  
fstern@summitblue.com

nlenssen@energy-insights.com  
bbaker@summitblue.com  
william.tomlinson@elpaso.com  
kjsimonsen@ems-ca.com  
Sandra.ely@state.nm.us  
bmcquown@reliant.com  
dbrooks@nevpc.com  
anita.hart@swgas.com  
randy.sable@swgas.com  
bill.schrand@swgas.com  
jj.prucnal@swgas.com  
sandra.carolina@swgas.com  
ckmitchell1@sbcglobal.net  
chilen@sppc.com  
emello@sppc.com  
tdillard@sierrapacific.com  
dsoyars@sppc.com  
jgreco@caithnessenergy.com  
leilani.johnson@ladwp.com  
randy.howard@ladwp.com  
Robert.Rozanski@ladwp.com  
robert.pettinato@ladwp.com  
HYao@SempraUtilities.com  
rprince@semprautilities.com  
rkeen@manatt.com  
nwhang@manatt.com  
pjazayeri@stroock.com  
derek@climaterestry.org  
david@nemtzow.com  
harveyederpspc.org@hotmail.com  
sendo@ci.pasadena.ca.us  
slins@ci.glendale.ca.us  
THAMILTON5@CHARTER.NET  
bjeider@ci.burbank.ca.us  
rmorillo@ci.burbank.ca.us  
aimee.barnes@ecosecurities.com  
case.admin@sce.com  
Jairam.gopal@sce.com  
tim.hemig@nrgenergy.com  
bjl@bry.com  
aldyn.hoekstra@paceglobal.com  
ygross@sempraglobal.com  
jlaun@apogee.net  
kmkiener@fox.net  
scottanders@sandiego.edu  
jkloberdanz@semprautilities.com  
andrew.mcallister@energycenter.org  
jack.burke@energycenter.org  
jennifer.porter@energycenter.org  
sephra.ninow@energycenter.org  
dniehaus@semprautilities.com  
jleslie@luce.com  
ofoote@hkcf-law.com  
ekgrubaugh@iid.com

pepper@cleanpowermarkets.com  
gsmith@adamsbroadwell.com  
mdjoseph@adamsbroadwell.com  
Diane\_Fellman@fpl.com  
hayley@turn.org  
mflorio@turn.org  
Dan.adler@calcef.org  
mhyams@sflower.org  
tburke@sflower.org  
norman.furuta@navy.mil  
amber@ethree.com  
annabelle.malins@fco.gov.uk  
dwang@nrdc.org  
filings@a-klaw.com  
nes@a-klaw.com  
obystrom@cera.com  
sdhilton@stoel.com  
scarter@nrdc.org  
abonds@thelen.com  
cbaskette@enernoc.com  
colin.petheram@att.com  
jwmctarnaghan@duanemorris.com  
kfox@wsgr.com  
kkhoja@thelenreid.com  
pvalen@thelen.com  
ray.welch@navigantconsulting.com  
spauker@wsgr.com  
rreinhard@mofo.com  
cem@newsdata.com  
hgolub@nixonpeabody.com  
jscancarelli@flk.com  
jwiedman@goodinmacbride.com  
mmattes@nossaman.com  
jen@cnt.org  
lisa\_weinzimer@platts.com  
steven@moss.net  
sellis@fypower.org  
arno@recurrentenergy.com  
BRBc@pge.com  
ELL5@pge.com  
gxl2@pge.com  
jxa2@pge.com  
jdfl@pge.com  
RHHJ@pge.com  
sscb@pge.com  
svs6@pge.com  
S1L7@pge.com  
vjw3@pge.com  
karla.dailey@cityofpaloalto.org  
farrokh.albuyeh@oati.net  
dtibbs@aes4u.com  
jhahn@covantaenergy.com  
andy.vanhorn@vhcenergy.com  
Joe.paul@dynegey.com

info@calseia.org  
gblue@enxco.com  
sbeserra@sbcglobal.net  
monica.schwebs@bingham.com  
phanschen@mofo.com  
josephhenri@hotmail.com  
pthompson@summitblue.com  
dietrichlaw2@earthlink.net  
Betty.Seto@kema.com  
JerryL@abag.ca.gov  
jody\_london\_consulting@earthlink.net  
steve@schiller.com  
mrw@mrwassoc.com  
rschmidt@bartlells.com  
adamb@greenlining.org  
stevek@kromer.com  
clyde.murley@comcast.net  
brenda.lemay@horizonwind.com  
carla.peterman@gmail.com  
elvine@lbl.gov  
rhwisner@lbl.gov  
C\_Marnay@lbl.gov  
philm@scedenergy.com  
rita@ritanortonconsulting.com  
cpechman@powereconomics.com  
emahlon@ecoact.org  
richards@mid.org  
rogerv@mid.org  
tomk@mid.org  
fwmonier@tid.org  
brbarkovich@earthlink.net  
johnrredding@earthlink.net  
clark.bernier@rlw.com  
rmccann@umich.edu  
cmkehrin@ems-ca.com  
e-recipient@caiso.com  
grosenblum@caiso.com  
mgillette@enernoc.com  
rsmutny-jones@caiso.com  
saeed.farrokhpay@ferc.gov  
david@branchcomb.com  
kenneth.swain@navigantconsulting.com  
kdusel@navigantconsulting.com  
gpickering@navigantconsulting.com  
lpark@navigantconsulting.com  
davidreynolds@ncpa.com  
scott.tomashefsky@ncpa.com  
ewolfe@resero.com  
Audra.Hartmann@Dynergy.com  
Bob.lucas@calobby.com  
curt.barry@iwpnews.com  
danskopec@gmail.com  
dseperas@calpine.com  
dave@ppallc.com

dkk@eslawfirm.com  
wynne@braunlegal.com  
kgough@calpine.com  
kellie.smith@sen.ca.gov  
kdw@woodruff-expert-services.com  
mwaugh@arb.ca.gov  
pbarthol@energy.state.ca.us  
pstoner@lgc.org  
rachel@ceert.org  
bernardo@braunlegal.com  
steven@lipmanconsulting.com  
steven@iepa.com  
wtasat@arb.ca.gov  
etiedemann@kmtg.com  
ltenhope@energy.state.ca.us  
bushinskyj@pewclimate.org  
lmh@eslawfirm.com  
obartho@smud.org  
bbeebe@smud.org  
bpurewal@water.ca.gov  
dmacmull@water.ca.gov  
kmills@cfbf.com  
karen@klindh.com  
ehadley@reupower.com  
Anne-Marie\_Madison@TransAlta.com  
sas@a-klaw.com  
egw@a-klaw.com  
akelly@climatetrust.org  
alan.comnes@nrgenergy.com  
kyle.silon@ecosecurities.com  
californiadockets@pacificorp.com  
Philip.H.Carver@state.or.us  
samuel.r.sadler@state.or.us

agc@cpuc.ca.gov  
aeg@cpuc.ca.gov  
blm@cpuc.ca.gov  
cfl@cpuc.ca.gov  
cft@cpuc.ca.gov  
tam@cpuc.ca.gov  
dsh@cpuc.ca.gov  
edm@cpuc.ca.gov  
eks@cpuc.ca.gov  
cpe@cpuc.ca.gov  
hym@cpuc.ca.gov  
hs1@cpuc.ca.gov  
jm3@cpuc.ca.gov  
jnm@cpuc.ca.gov  
jbf@cpuc.ca.gov  
jk1@cpuc.ca.gov  
jst@cpuc.ca.gov  
jtp@cpuc.ca.gov  
jol@cpuc.ca.gov  
jci@cpuc.ca.gov  
jf2@cpuc.ca.gov  
krd@cpuc.ca.gov  
lrn@cpuc.ca.gov  
ltt@cpuc.ca.gov  
mjd@cpuc.ca.gov  
ner@cpuc.ca.gov  
pw1@cpuc.ca.gov  
psp@cpuc.ca.gov  
pzs@cpuc.ca.gov  
rmm@cpuc.ca.gov  
ram@cpuc.ca.gov  
smk@cpuc.ca.gov  
sgm@cpuc.ca.gov

bdicapo@caiso.com  
jsanders@caiso.com  
jgill@caiso.com  
ppetgill@caiso.com  
mscheibl@arb.ca.gov  
jdoll@arb.ca.gov  
pburmich@arb.ca.gov  
bblevins@energy.state.ca.us  
dmetz@energy.state.ca.us  
deborah.slone@doj.ca.gov  
dks@cpuc.ca.gov  
kgriffin@energy.state.ca.us  
ldecarlo@energy.state.ca.us  
mprior@energy.state.ca.us  
mgarcia@arb.ca.gov  
pduvair@energy.state.ca.us  
wsm@cpuc.ca.gov  
ntronaas@energy.state.ca.us  
hurlock@water.ca.gov  
hronin@water.ca.gov  
rmiller@energy.state.ca.us  
lisa.c.schwartz@state.or.us  
cbreidenich@yahoo.com  
dws@r-c-s-inc.com  
jesus.arredondo@nrgenergy.com  
charlie.blair@delta-ee.com  
Tom.Elgie@powerex.com  
clarence.binninger@doj.ca.gov  
david.zonana@doj.ca.gov  
tcx@cpuc.ca.gov  
ken.alex@doj.ca.gov  
svn@cpuc.ca.gov  
scr@cpuc.ca.gov